

In the Claims:

This listing of Claims will replace all prior versions, and listings, of Claims in the Application.

Listing of Claims:

1. (Currently Amended) A first controller for positioning on a shelf of a data storage cabinet in a mass storage system having a plurality of reporting groups, comprising:
an interface to a data communication loop for a reporting group, said loop linked to device enclosures each including a plurality of data devices and an enclosure processor, wherein the interface is adapted for transmitting control commands onto the data communication loop;
a cabinet bus interface controller linked to a cabinet bus in the data storage cabinet and adapted to receive enclosure reporting messages from the device enclosures including environmental information for the device enclosures and to transmit a subenclosure messages message including environmental information for the first controller; and
a processor for creating the control commands and the subenclosure message.
2. (Currently Amended) The first controller of Claim 1, wherein the control commands are addressed to one of the device enclosures designated as a primary reporting device.
3. (Currently Amended) The first controller of Claim 2, wherein the processor functions to designate the primary reporting device.
4. (Currently Amended) The first controller of Claim 3, wherein the processor functions to change the primary reporting device designation to a different one of the device enclosures.

5. (Currently Amended) The first controller of Claim 1, wherein at least one of the device enclosures is positioned in a data storage cabinet differing from the data storage cabinet housing the first controller and wherein the two data storage cabinets are communicatively-linked with a cabinet communication network, the different data storage cabinet including a cabinet bus linked to the cabinet communication network to provide a communication path for the enclosure reporting messages from at least one of the device enclosures.

6. (Currently Amended) The first controller of claim 1, wherein the cabinet bus interface controller is configured to receive cabinet identification and shelf identification signals from the cabinet bus and to determine a shelf identifier from the shelf identification signals and wherein the subenclosure messages include the shelf identifier and the cabinet identification.

7. (Currently Amended) The first controller of Claim 1, wherein the enclosure reporting messages comprise SCSI-3 Enclosure (SES) data.

8. (Currently Amended) The first controller of Claim 1, wherein the cabinet bus interface controller emulates a memory image to the processor including read only memory, non-volatile read and write memory, and read and write memory.

9. (Currently Amended) The first controller of Claim 8, wherein the read only memory includes a shelf identifier field for storing a shelf identifier for the first controller and a cabinet number field for storing a cabinet identifier for the data storage cabinet.

10. (Currently Amended) The first controller of Claim 8, wherein the cabinet bus interface controller transmits interrupt signals to the processor based on changes to the memory image.

11. (Currently Amended) A method of controlling communications in a data storage complex containing a plurality of reporting groups, comprising:

providing a controller including a processor for creating and transmitting control commands and a cabinet bus interface controller for providing an interface between the processor and other devices in one of the plurality of reporting groups within the storage complex; and

communicatively linking the controller to a plurality of enclosures with a data communication loop and with a cabinet bus, wherein the control commands are transmitted over the data communication loop and wherein environmental status messages are received by the controller over the cabinet bus.

12. (Currently Amended) The method of Claim 11, wherein the cabinet bus interface controller includes a data structure for storing a reporting group assignment for the controller and wherein the cabinet bus interface controller is configured to, prior to the receiving, determine whether the environmental status messages on the cabinet bus originate from ~~ones~~ one of the enclosures ~~enclosure~~ assigned to said one of the plurality of the ~~controller~~ reporting ~~group~~ groups.

13. (Currently Amended) The method of Claim 12, further including determining with the cabinet bus interface controller from signals on the cabinet bus a shelf position of the controller within a cabinet in the data storage complex.

14. (Currently Amended) The method of Claim 12, further including determining ones of the enclosures participating in the said one of the plurality of ~~controller~~ reporting ~~group~~ groups.

15. (Original) The method of Claim 11, wherein each of the enclosures includes a plurality of devices linked to the data communication loop and further including bypassing malfunctioning ones of the devices on the data communication loop.

16. (Original) The method of Claim 15, wherein the bypassing is performed on a targeted one of the enclosures within a targeted cabinet in the data storage complex.

17. (New) A system for data communication management comprising:
plurality of devices stored within a data storage cabinet, said devices grouped into a plurality of reporting groups;
a data communication loop for transmitting control commands to and receiving control information from said plurality of devices within each reporting group; and
a host for controlling said devices via said data communication loop in response to said control information received from said devices.

18. (New) The system as set forth in claim 17, further comprising:
a controller coupled to said host and said data communication loop, wherein said controller controls said devices in response to commands received from said GUI host.

19. (New) The system as set forth in Claim 18, wherein the control commands are addressed to one of the plurality of devices designated as a primary reporting device.

20. (New) The system as set forth in Claim 19, wherein the controller further comprises:
a cabinet bus interface controller linked to a cabinet bus in the data storage cabinet and adapted to receive enclosure reporting messages from the plurality of devices; and
a processor that functions to designate the primary reporting device.

21. (New) The system as set forth in Claim 20, wherein the enclosure reporting messages comprise SCSI-3 Enclosure (SES) data.

22. (New) The system as set forth in Claim 20, wherein the cabinet bus interface controller emulates a memory image to the processor including read only memory, non-volatile read and write memory, and read and write memory.

23. (New) The system as set forth in Claim 22, wherein the read only memory includes a shelf identifier field for storing a shelf identifier for the controller and a cabinet number field for storing a cabinet identifier for the data storage cabinet.

24. (New) The system as set forth in Claim 22, wherein the cabinet bus interface controller transmits interrupt signals to the processor based on changes to the memory image.

25. (New) A first controller for positioning on a shelf of a data storage cabinet in a mass storage system, comprising:

an interface to a data communication loop linked to device enclosures each including a plurality of data devices and an enclosure processor, wherein the interface is adapted for transmitting control commands onto the data communication loop addressed to one of the device enclosures that is designated as a primary reporting device;

a cabinet bus interface controller linked to a cabinet bus in the data storage cabinet and adapted to receive enclosure reporting messages from the device enclosures including environmental information for the device enclosures and to transmit a subenclosure message including environmental information for the first controller; and

a processor for creating the control commands and the subenclosure message, wherein the processor designates the primary reporting device.

26. (New) The first controller of Claim 25, wherein the processor functions to change the primary reporting device designation to a different one of the device enclosures.

27. (New) The first controller of Claim 25, wherein at least one of the device enclosures is positioned in a data storage cabinet differing from the data storage cabinet housing the first controller and wherein the two data storage cabinets are communicatively-linked with a cabinet communication network, the different data storage cabinet including a cabinet bus linked to the cabinet communication network to provide a communication path for the enclosure reporting message from at least one of the device enclosures.

28. (New) The first controller of claim 25, wherein the cabinet bus interface controller is configured to receive cabinet identification and shelf identification signals from the cabinet bus and to determine a shelf identifier from the shelf identification signals and wherein the subenclosure message includes the shelf identifier and the cabinet identification.

29. (New) The first controller of Claim 25, wherein the enclosure reporting messages comprise SCSI-3 Enclosure (SES) data.

30. (New) The first controller of Claim 25, wherein the cabinet bus interface controller emulates a memory image to the processor including read only memory, non-volatile read and write memory, and read and write memory.

31. (New) The first controller of Claim 30, wherein the read only memory includes a shelf identifier field for storing a shelf identifier for the controller and a cabinet number field for storing a cabinet identifier for the data storage cabinet.

32. (New) The first controller of Claim 30, wherein the cabinet bus interface controller transmits interrupt signals to the processor based on changes to the memory image.

33. (New) A method of controlling communications in a data storage complex, comprising:

providing a first controller including a processor for creating and transmitting control commands and a cabinet bus interface (CBI) controller for providing an interface between the processor and other devices in the data storage complex; and

communicatively linking the controller to a plurality of enclosures with a data communication loop and with a cabinet bus,

wherein the control commands are transmitted over the data communication loop and wherein environmental status messages are received by the controller over the cabinet bus, and wherein the CBI controller includes a data structure for storing a reporting group assignment defining a reporting group for the first controller and wherein the CBI controller

is configured to determine whether the environmental status messages on the cabinet bus originate from one of the enclosures assigned to the reporting group.

34. (New) The method of Claim 33, further including determining with the CBI controller a shelf position of the first controller within a cabinet in the data storage complex from signals on the cabinet bus.

35. (New) The method of Claim 33, further including determining which enclosures of the plurality of enclosures participate in the reporting group.

36. (New) The method of Claim 33, wherein each of the enclosures includes a plurality of devices linked to the data communication loop and the method further includes bypassing devices that are malfunctioning on the data communication loop.

37. (New) The method of Claim 36, wherein the bypassing is performed on a targeted one of the enclosures within a targeted cabinet in the data storage complex.